THE HORTICULTURIST

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Special Contributions.

Horticultural Exhibitions.

As we are now enjoying a breathing spell after the campaign of last year's shows, and as this is the particular season when the various committees, having the matter in charge, are preparing their schedules for another year, a few words of advice may not be deemed out of place to such as these.

It has long been a disputed point whether discussional meetings, or exhibitions of horticultural productions, were the more useful in disseminating knowledge that would assist in raising the science—or practice, rather, if the latter term is preferred—to a higher standard.

Setting aside the utility of the question, there can be but one voice as to the popularity of the exhibitions; as the discussional meetings are in a great measure confined to a comparatively few speakers, who relate their experience for the benefit of others.

This being the case, and in view of the fact that there are hundreds of people who visit our horticultural shows that could not be persuaded to attend the conventions, it behooves us to introduce every idea that tends towards improving the system. It has been advanced, and not without some reason, that the majority of our premium lists are composed to suit the collections of the wealthy, whilst militating against the poor man's mite. No better system has ever been inaugurated to counteract this complaint than the so-called working-men's shows in various places throughout England, where special prizes are awarded for small collections, and special objects of growth, deposited by the owners of little cottage-gardens.

There is no plausible reason why this very plan should not be introduced into this country, and inaugurated by all of our societies. Especially in our large cities is the complaint most frequent, and made with the greatest show of justice. Whilst awarding all credit to the wealthy leaders of horticultural superiority, and our exhibitions would indeed be poor without their contributions, still how seldom do we notice the single pot of Geranium or Fuchsia, grown perhaps in the sunny

window of the modest cottage; or the plate of onions or beets, grown in the little back garden, the owners *chef d'œuvre*, upon which he or she has bestowed many a leisure moment.

We do not make these suggestions in a fault-finding spirit, but rather to popularize our societies by gathering in all who feel an interest in the subject, be they rich or poor. Nowhere in the world is this question better understood, and more perfectly met, than in England, where it is a rare occurrence to find wealthy citizens not taking an active part in the progress of horticulture in all its branches; where men, trained from infancy to old age, compete side by side with the market gardener, even in the most modest acceptation of the term. Horticulture is, beyond a doubt, one of the most powerful aids in solving the great social problem of the day. It has done more to level false barriers, based upon wealth alone,—more to create a genial, true fellow-feeling among persons of kindred tastes,—and more to build up a spirit of contentment and self-respect than any other pursuit of which we have any knowledge.

Reform is likewise needed in the distribution of the amount appropriated for prizes. In forming premium lists, great care should be taken that the whole available sum be not offered for a few leading articles, to the detriment of dozens of others that really deserve quite as much assistance as the few favored kinds.

Our remarks are intended to apply more especially to the wholesale manner of offering premiums for collections, rather than special articles embraced therein. True, a few genera of plants are annually complimented in this way; but there are dozens of genera, that we all delight to grow, which are rarely ever mentioned in the schedules.

For instance, in the place of offering a large prize for the *largest and best* collection of greenhouse plants, let the amount designated be distributed among the plants that usually go to make up the collections somewhat as follows:

After offering prizes for the best three or six specimens each of all the leading genera of greenhouse plants that are usually grown for exhibition purposes, then finish the list by a premium for best set of plants not comprised in the preceding. Also, one might be added to encourage the introduction of new plants never before shown. Now how much better would be such an arrangement,—the distribution of the appropriated funds among many competitors, than for one or two to receive it under the general heading of best collection.

After all, it is not so much the exact amount of money gained, as it is the accompanying feeling that prompts one to greater exertions in the future. A gardener may not feel competent to compete for the large collection that comprises rare old specimens, when he might feel assured of success in the special prize for some individual class of plants, requiring but a single season to prepare.

The encouragement offered for growing annuals seems to be insufficient. With the exception, probably, of one of our oldest societies, this is a point which is greatly neglected; and yet there is no class of plants so deservedly popular, nor one which needs more encouragement. How is this to be effected without the co-operation of societies inaugurated for the purpose of encouraging such as these?

Seedsmen's catalogues, praiseworthy as they all are, may be doing a good work in their way, but people desire to see the flowers themselves; and having once made their acquaintance, the next step is to possess them. Descriptions avail but little in comparison with the reality.

It is not sufficient to offer a premium for the best collection; this is entirely too sweeping. We must have special prizes for the best set of Asters, Ten-week's-stocks, Cockscombs, Phlox Drummondii, Portulaccas, and other leading kinds. By thus particularizing certain genera of plants or flowers we succeed in introducing the improved forms to notice.

And in a great measure this is true of the popular class of bedding plants. We must have in these specific mention made of the chief kinds in use, in the place of generalization, as is too much practiced of late.

One more point in respect to premium lists, and we will quit the subject. In studying the prominent features of all successful associations, and we now allude to those whose success is assured, in the old world, we find there is a strong inclination to prohibit any article from appearing on the tables that is not fully up to the standard. Contributors are not expected to be the best judges of their own articles; and in many instances persons of taste allow their judgments to be warped by personal prejudice when exhibiting fruits and flowers, that, did they belong to others, would be ruled out by these very parties. These expressions of opinion may sound harsh, but we believe them to be true, and therefore call attention to the fact purely for the good of the cause. Once form an undeviating rule, that all inferior fruits, plants and flowers shall not appear upon our tables, and we believe the show will be far more popular, as we know it will be far superior to those ordinarily held.

Cultivation of the Azalea Indica,

With special reference to the Production of New Varieties.

Read before Massachusetts Horticultural Society

BY MARSHALL P. WILDER.

IT is only about thirty years since much attention has been given to the production of new varieties of the azalea. But those originated within the last twenty years may now be numbered by thousands; one of my friends in Belgium having produced more than six hundred named kinds. Belgium, Germany and England have given more attention to the production of new varieties than all the rest of the world. And never before has there been more interest or enterprise in this line of cultivation. Every year brings up something desirable; and now that the Japan azaleas (*A. mollis*) are coming to our aid, we may expect even finer results than before. It is quite probable that by the intermixture of the Chinese and this new hardy species we may obtain varieties with persistent foliage. These Japan varieties are believed to be hardy; a plant in the Cambridge Botanic Garden, which came from Japan seed, having stood entirely uninjured for several years without protection. The Chinese varieties are easily crossed by the pollen of the Japan sorts, and I have now a pan of young plants just coming up, which are the result of hybridizations made last spring, between *Azalea Indica* and *A. mollis*.

New varieties are raised by the cross-fertilization of flowers, which produce an abundance of seed. The seed vegetates freely, and with good care will produce fine little plants that in two or three years may be made to bloom, and thus give us early the results of our efforts. The plants which I hold in my hands [Mr. Wilder here exhibited two seedlings which were acknowledged by all to be of remarkable size for their age], are the results of seed produced by the Souvenir de Prince Albert impregnated with the pollen of various other kinds. The seed was sown last winter, and came up in March or April. These plants, as they stand, measure more than a foot in height, and I expect to have them in flower next year. To accomplish this I shall either take off the tops and graft them into strong stocks, or, what is more sure, inarch the tops on to strong stocks. The process of grafting may be either by split grafting or by a side graft; but in these cases the plants should be laid on their sides in a close frame and in very mild heat; or they can be worked by standing the stock upright and slipping over the whole a common glass lamp chimney, stuffing the top with cotton, so as to keep the air close and the graft fresh until a union has taken place, and the graft begins to grow. This is called the "stifled graft," and was introduced some thirty-five years since by the Chevalier Soulange Bodin, for the propagation of camellias, azaleas, and other hard wooded plants. The *Azalea Phœnicea* has been found to be one of the very best for stocks.

Cuttings are made of half-ripened wood, cut smoothly, just below a leaf bud. They may be planted in pans or pots, very thoroughly drained with broken pots, on which

should be a covering of moss, cut hay, or spent hops from the brewery, which I have found to be most excellent for drainage. For soil we use two-thirds peat and one-third fine white sand; but they will do equally well in sand alone. As regards temperature, cuttings of the azalea will root in a shady, cool place in the greenhouse. This is, however, a slow process, and the better way is to cover the pots with bell glasses, or, which is still better, to place them in a bed with a mild heat. In this way cuttings root very freely, and in two years, with good care, will make pretty blooming plants.

In the production of new varieties, if you desire white varieties, use white sorts to cross with; if red, then use red; if variegated sorts are desired then impregnate with the pollen of striped or spotted sorts. For this purpose I use a small camel's hair pencil, which I have always in my pocket, taking the pollen from one flower and transferring it to another. The proper time to impregnate the azalea is about three days after the flower is open. At this time the stigma will be developed, and in such a state as to receive the pollen readily and before the stigma becomes too glutinous.

But we desire to go farther than merely obtaining beautiful varieties, and to make the azalea hardy, so as to stand the open air like the deciduous species; and this I deem quite probable by the varieties which we shall obtain from the crosses of the Japan species. The *Azalea Indica alba* is nearly hardy in England, and has stood in some places for many years without protection. A cross with this and the Japan species would give hopes of success.

Although I have spoken of hybridization as the means of producing new varieties, no plant is more given to what is called sporting than the azalea. Some of the very best varieties we have owe their origin to a freak of nature; that is, to flowers which have departed from the natural type and given flowers of other colors. To these we have given the name of sports. They are perpetuated by grafting from the sporting branch, as I have described in my lecture on hybridization, published in the Transactions of the Society for 1872.

The seed is gathered in October or November, and kept until January, when it is sown in shallow pans in two-thirds peat and one-third fine sand. When the young plants have attained to the height of two inches, they should be potted off in thumb pots, and placed in a bed of tan or similar substance, where the bottom of the pot will not dry suddenly, near the glass in the shady part of a pit or greenhouse. These pots, as well as those afterwards used, should be most thoroughly drained.

In the treatment of established plants I have drained with potsherds, with a covering of cut hay, moss, or spent hops from the brewery, so that the plants might take a full supply of water without the earth becoming sodden and sour. The plants should at all times have a regular supply of water, especially when in flower and while making their growth. I have found that it is well to keep them in the greenhouse until the weather becomes warm outside, so that they may ripen their wood thoroughly. They should then be removed to a cool, shady place, or, if allowed to receive the sun in the middle of the day, they should be plunged in some substance, so as to prevent the roots from becoming injured by the heat of the sun on the pots. Mr. Hunnewell's method is to pile soil around each separate pot, and I have never seen any azaleas in better condition than his. The best season for potting is immediately after the plants have made their growth in the spring, and the best soil is three parts fine old peat and one part fine sand. The azalea may be forced early, and a succession of flowers may be had from December to May, if kept in a cool house until wanted for forcing.

Nothing in the line of ornamental plants under glass can surpass the gorgeousness of the azalea, with its rich and varied colors, and it is not probable or perhaps possible that any plant will ever exceed it in beauty. A large conservatory of these plants, when in full bloom, may be truly described as effulgent with beauty and glory.

The Greenhouse.

Greenhouse for August.

IF any repairs are required in these structures, it should be seen to at once, such as painting and repairing broken glass. Heating apparatus should be examined and put in thorough order for the next winter. If a hot water boiler is employed, the soot should be thoroughly cleaned from every part. An accumulation of soot not only prevents a proper action of the fire, but is also dangerous in causing fires. This, we have no doubt, is a frequent cause of burning greenhouses every year, especially where the old-fashioned smoke-flue is employed. All is satisfactory until some extra cold, windy night. Then the heat is found insufficient, the fire is pushed, and the flue becomes extra hot; the soot is ignited, and the flue bursts from the extra heat, and scatters destruction among the plants, if it does not set the house on fire. But the staging and benches being generally of wood, which becomes as dry as tinder, it requires but little to ignite, and the house and plants are destroyed in a very short time. This is no fancy sketch; we have complaints of such things every winter.

Any alterations or repairs to boilers and pipes should be seen to at once. It is less trouble when the house is comparatively empty, and everything is in working order when required. Any heating apparatus found necessary to improve or replace after the experience of last winter, must not be neglected. If all was found satisfactory last winter, it was a thorough test.

Soils.—Now is the best time to lay in a supply for the next season's use, for it is generally dry and in good condition for storing away. It is a mistake to obtain soil, and mix and turn it over several times out of doors, until all the fibre is decayed. This process is much better performed by the plants, and the full benefit of fresh soil obtained; but in the former instance, half the benefit of fresh soil is lost, and it is soured before using. Any good turf from an old pasture is best for general potting; but if this is not obtainable, there is usually some to be found by the side of roads, and on the sites of new buildings. Any place where grass grows short and thick may be usually depended upon as a good soil for pot plants.

Peat is indispensable where a general collection of plants are cultivated, although all the common flowering plants do not require it. Many plants can be grown better in a good loam than in peat; but we are obliged to employ a portion of peat for many plants for which we should prefer a good loam, if it was obtainable in this district; for example, in growing camellias and many species of palms; but for most species of orchids, peat is the best. But when we mention peat, we do not refer to the black, soapy substance found in bogs, but the top soil, in which ferns, and vaccariums, and such like plants grow wild. This is chiefly composed of the living roots of such plants, with usually a mixture of white sand. If this is obtained dry, and stored in a shed, the fibre is nearly as tough a year after as when fresh cut. In Europe, a large quantity of leaf soil is used for growing pot plants. This is composed of the decayed leaves of such trees as oak and beech; evergreen leaves are useless. But such soil is of little use in this country, for it becomes too dry, and when dry, it is not easy to moisten. In place of leaf soil, it is best to add thoroughly decayed manure, if the soil is too stiff, and also some coarse sand. This can be usually obtained from water courses, if no pit-sand is found in the district. We can obtain plenty of the best quality close at hand. The mixture we employ for all our soft-wooded plants is simply two parts fresh loam and one part fresh horse manure from the car stables, mixed together and stored under sheds when dry, at this season. We add more or less sand, according to circumstances, when used.

It has been a very poor season for starting subtropical plants out of doors. Dry, bright days and cold nights have been the rule, with quite sharp frosts the middle of June, which in some instances not only pinched tender flow-

ers and vegetables, but blackened the young growth on oak and hickory trees. Such plants as pensas have the foliage much punished, but being fast-growing plants, will soon recover, but looked very shabby for a time. Cannas, although not growing fast, will no doubt be as fine as usual in the autumn. Several of the new varieties were in flower the third week in June, and both flowers and foliage being fine, prove them very valuable additions to this useful class of plants.

Orchids will now be growing freely, and will require abundance of moisture in the atmosphere, and also to the roots. Blocks will require syringing several times on hot days; and the plants well syringed over the foliage each afternoon, keep the plants free from dust and insects. The principal plants in flower will be Cypripedium Roezlii, Miltonias, a few late Cattleyas, such as Leopoldii and Schilleriana, Odontoglossum Grenberghia, and the lovely scarlet Disa grandiflora. This last should be in every collection, for the best place to grow it is in the coldest part of the camellia house; and as it requires no special treatment, except abundance of water at all times, it is very easily grown. The Dove plant will be also in flower. This is one of the orchids which is always inquired for by the ladies. A few of these flowers are a great addition to a wedding bouquet. Many of the Stanhopeas will be in flower at this season, and although the flowers do not last long, are very showy, and give the plant a strange appearance from growing through the bottom of the basket. Aerides and Vandas will be growing fast after flowering. Must be kept hot and moist, and not allowed any bright sunshine.

Ferns and Selaginellas will be growing fast, and will require abundance of water at this season. Do not allow draughts of dry wind directly on the foliage. Frequently, in very hot, dry weather, it is best to reduce the quantity of air admitted during the day, and increase it at night. The air is usually moist at that time, but in the day-time it dries all the moisture out of the houses, in spite of continual sprinkling the floors with water. Many hot-house ferns will grow better in a shady greenhouse during the summer months, the growth being stiffer and a better color. Of course the only difference usually at this season in the various houses is the amount of ventilation given, the dry, hot air being best excluded from some plants as far as possible. Be careful to keep plants of Adiantum, especially Farleyense, from draughts; the foliage is soon injured, and also by neglect of shading. We seldom water ferns over the foliage; it spoils the foliage of such varieties as Gymnogramas, Pteris tricolor and Chelianthus, and in dull weather often decays the leaves of other tender, dense-growing varieties. Enough moisture can be caused by watering floors and stages.

Marantas and Alocasias.—Any pot-bound plants requiring a shift should have it at once, for it is best to have the pots well filled with roots before autumn. Shade from bright sun, and see that red spider does not establish itself, or the foliage will soon be spoiled. These plants are very useful for autumn decoration, especially in the shape of small plants for glass cases, in which the colors are usually extra brilliant.

Caladiums will now be at their best, and will require abundance of water, with good syringing over the foliage on bright afternoons. Mark and select the best varieties according to taste; for although it is necessary for the trade to grow a large number of varieties, two or three dozen sorts is usually enough for the private grower, and will give all the most distinct varieties. It would be well also to mark those sorts which grow best out of doors, for they vary in different soils and localities. We expect the new Alocasia Gibsonii will be a useful variety for outside planting, and the black foliage will give a new feature in subtropical gardening, and would not be entirely out of place, mixed with lighter plants for cemetery decoration.

Palms will now be in full growth and beauty, and must have abundance of water, both at the roots and overhead. There are no cultivated plants which require more water than these, if fine growth and good health is

expected. The Latania Borbonica is one of the best plants for furnishing vases for outside decoration. It is very handsome; the wind does not affect it; it is easily grown, and the plants are cheap. In purchasing palms, unless plants are required for immediate effect, we would advise our readers to obtain moderate-sized plants; for unless it is any rare or scarce variety, young plants are comparatively cheap, and growers have the pleasure of seeing the gradual development of their beauty. Some specimens are often infested with a small white scale. This is easily removed if taken as soon as a few are noticed; but it spreads very fast, and if allowed to go on unchecked, soon spreads over the entire plant, and requires much time and patience to remove. We often find it on small imported plants; and as there are usually a few left in the axils of the leaves, a fresh crop make their appearance with each new growth. But if taken before the leaf unfolds, a minute or two will clean it away. The prickly species, such as Calamus and Dæmonorops, are the most trouble in this respect; and it may also be noted that those species furnished with spines always require a strong heat at all seasons, and are not adapted for outside decoration.

Greenhouse Rhododendrons should receive more attention than they have so far had in this country. They are very handsome, much more so than the average so-called hardy varieties, which, in many instances last winter, were proved not at all hardy—a fact which the numerous deaths will prove. All the Arborium varieties will grow and flower well in the coolest house, if furnished with plenty of water and room to develop, and they make a grand show during winter and early spring months. We had our attention called to this by a recent notice of the beauty of these plants in an English gardening periodical, in which it stated the Arborium varieties were in full flower out of doors in North Staffordshire, when the plants were covered with snow. We recollect this extraordinary sight about twenty years ago. There was a heavy fall of snow late in the season, and the bright flowers were standing out from the snowy covering. But with these outside plants the full beauty of the flowers was only seen in a favorable season, the spring frost usually spoiling them before fully open; but when grown in a cool house, the flowers were grand each year—a fact demonstrated in another garden in the district. We are aware that some of the varieties grow too large for small houses; but Jasminaflora and its hybrids, and also the Javanicum hybrids, as well as the Gibsonii class, are very moderate growers, and flower when quite small—another advantage of these dwarf varieties. Many of them strike freely from cuttings, so that the time and trouble of providing stocks for grafting is not required; but most of this class require more heat than the Arborium varieties, as a slight freezing would be probably fatal to them, while Arborium would not be injured by quite a hard frost.

Azaleas.—Plants required for very early flowering may be placed out of doors for a short time, if watering is well attended to. Those which are required to make a second growth must have plenty of heat and moisture, with slight shade from bright sun. Young plants must receive the same treatment; for if they become stunted while small, they seldom make satisfactory plants, and frequently die off suddenly.

Camellias must be kept as cool as possible, or they will start a second growth, which does not flower, and would rot the flowering shoots. Keep the plants well supplied with water, and the foliage clean.

Vallota purpurea will now be in flower, and should be placed in the coolest position, to prolong the flowering season. If the plants are much pot-bound, it is a good plan to stand the pots in pans of water. These plants require large quantities of water, and it must be remembered that the plants are evergreen, and must not be dried off enough to destroy the foliage.

Calla Lilies will now require shaking clean out of the old soil, and potting into clean pots. A good, stiff loam, nearly approaching to a clay, with a thick, good, rotten manure, will grow these plants well. We stand the

plants out in full sun, and give little water, until they are rooting freely, and bring them inside before danger from frost. By this treatment we have fine flowers all the winter.

Bouvardias, Carnations and other winter-flowering plants which are planted out, must be kept free from weeds by frequently stirring the soil with the hoe. This, also, in a measure prevents the plants suffering from the dry, hot weather we usually experience at this season.

Poinsettias and Euphorbia Jacquiniflora must be shifted into their flowering pots, to insure the pots being well filled with roots before winter. This should not be delayed after this month. Give the plants plenty of light and air if indoors, and if outside, protect from rough winds, and water frequently when pots are well filled with roots.

Stevias and other plants plunged out of doors must be turned round once each week, to prevent the roots rambling.

Primulas must be kept as cool as possible, and watered with care. The double white will require shifting into the flowering pots by the end of the month.

Bulbs for early forcing must be obtained and potted as early as possible, or the pots will not be filled with roots when required for blooming. These are best plunged overhead in coal ashes.

Mignonette.—Sow some in pots for winter-blooming, and place in a shady position. Thin out the plants when up, to about six in a six-inch pot.

Bedding-out Plants.

FROM a valuable paper, read by Mr. John Feast at a meeting of the Maryland Horticultural Society, we make the following extracts:

The demand for bedding plants has so much increased, that where the grounds are extended, it requires thousands to satisfy the requirements. These plants are not now confined, as formerly, to verbenas and others of a similar character, but all plants which flower during the season, and which can be used for decoration; besides, also, what are termed foliage plants, which add greatly to the beauty of grounds when properly arranged by the hands of a skillful and experienced person. Indeed, this branch has become so popular that many florists raise few other plants, losing all interest in plants which are rare at this time, save where there is a natural love for plants.

The taste for new plants has revived of late, and will, in a few years, increase the number of bedding-out plants. Of those plants now in cultivation, which, if properly planted in clumps, or as single specimens, have a fine effect, I will enumerate a few that give that oriental style so much appreciated.

Grounds may have fine specimen trees or choice evergreens, and still want something to relieve the prevailing monotony. A diversity of foliage, properly dispersed, should be aimed at to give effect, and plant, in addition, such genera as Bananas, Alocasias, Dracænas, Arums, Agaves and Yuccas. Caladiums also make fine bedding-out plants, contrasted with Zepharanthus alba, which gives a profusion of bloom, its white liliaceous flowers lasting some time. The pampas grass, with its tall reeds and flowers of a silvery cast waving in the wind, is quite ornamental, as is also the Erianthus Ravennæ, another tall-growing grass.

The Panicum bambusa and Zea Japonica, or striped maize, also produce good effects.

Then we have the Erythrina, or coral plant, with its large scarlet papilionaceous flowers, continuing in bloom till frost, when the roots may be taken up and put away like dahlias, than which planted out deserves more attention for decorative purposes. The Hibiscus Sinensis of varieties form a fine class of plants, flowering during the summer and autumn. The much-neglected Oleander with its varieties is one of the most abundant flowering plants in cultivation, and one which, though common, holds its position with most hard-wooded plants.

Many foliage plants have a pretty effect when skillfully planted, so as to blend the different colors artistically. This ribboning system practiced on a large scale I have observed at the Crystal Palace at Sydenham, where the

effect is fine; yet I may state that I have seen bedding out even on a much larger scale at Erfurt in Prussia, where from 50 to 100 acres are planted out, the seed being raised for exportation. As far as the eye can distinguish, the different colors are separate, each covering a large space of ground, and producing an effect beyond description.

Azaleas and Rhododendrons. — In March were exhibited some choice and new varieties of the Azalea. The handsomely trained standard Azalea from J. B. Moore, named *Decora*, very deservedly received the highest praise of all. The luxuriant foliage formed a fine relief to the large number of flowers, and made it an object of more than usual attraction. Particularly noticeable, also, was a small plant of Azalea Francois De Taye, which Van Houtte says is one of the finest in cultivation. A fine plant of *Rhododendron Veitchianum lævigatum* was shown, which will grow freely in a warm greenhouse, and bloom for a long time; the flowers are clear waxy, and valuable for all kinds of floral decorations. This very fine variety was shown for the first time. Three fine varieties of Azaleas were shown by Marshall P. Wilder: Roi Leopold, orange color, spotted with amaranth, the flowers being of fine form; Hermann Seidel, with double flowers, of a bright rose color, and Jean Van Geert, of bright, glossy rose color; also, *Azalea mollis*, one of a new, hardy species from Japan, of which Van Houtte says: "It is quite a novel tribe, beautiful habit, large foliage, first-rate flowers, of all hues, in red, white, yellow, primrose and flesh colored tints. These flowers, of perfect form and as large as those of hardy rhododendrons, are most brilliant." The varieties shown were Isabelle Van Houtte, flowers very large, beautiful dark nankeen, spotted with orange; Madame Camille Van Langenhone, snow white, some of the flowers barred with salmon, others striped with light rose and carmine, a very beautiful and effective variety; *Céuti striatella*, a fine, free flowering kind; and *Nonpareil*, white, ribboned with rose, a splendid variety.

Cyclamens.—At a winter meeting were exhibited some magnificent Cyclamens from Jas. O'Brien and C. B. Gardiner, which were the admiration of all. The elegant form and varied colors and markings of the Cyclamen, and the freedom with which the flowers are produced, with the length of time which they continue in great beauty and freshness, are all valuable qualities. The foliage, too, is very ornamental; especially so were some of these plants, the center of the leaves being beautifully marbled, with the edges green, the marking being very uniform. The flower spikes, with their pretty pink flowers raised well above the foliage, and the abundant bloom, some of the plants having each at least one hundred and fifty buds and blossoms, made them objects of great beauty. A pink-flowered one from Mr. O'Brien was especially noticeable, it being of a dwarfer habit than they usually are, of a very symmetrical growth and handsomely flowered.

New Pelargonium Queen Victoria.— Mr. John Saul, in his catalogue for 1875, gives a very showy colored plate of the new Pelargonium "Queen Victoria," and describes it in the following terms:

To say that this is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered.

The flowers have peculiarly crispy petals; they are not really double, but from their fullness of form and extra number of petals have the appearance of being so. The color is a rich vermilion, all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground color makes the flower extremely pleasing and attractive.

The Finest Wistaria.—At the corner of Second ave. and Seventh st., New York, may be seen the largest Wistaria in America. It covers a space 160 feet long and 70 feet high, and has borne in one season no less than 60,000 blossoms upon it.

Garden Gossip.

Garden Notes.

BY JOSIAH HOOPES.

DIRECTIONS are given in *The Journal of Horticulture*, London, for forming neat little miniature trees in pots, especial reference being made to two of the most deserving plants for this treatment. The very pretty ivy-leaved geranium, "*L'Elegante*," may be trained to a neat little umbrella-shaped trellis, which, during the season, it will completely cover with its distinctly variegated foliage. To intensify the color of the latter, the stem may be slightly cut in places, and then exposed to the sun. Another novel specimen may be formed by grafting a shoot of the *Iresine Lindeni* upon the variegated form of the old *I. Verschaffelti*, allowing a few shoots from the latter to grow up and encircle the former. The grafting process is readily performed on this class of plants, and is very effective. If a young plant of the golden-leaved thyme is carefully grown, and the side shoots near the base cut off, one may soon form an attractive little tree, which will be not unlike the celebrated dwarf plants so common among Japanese gardeners, and, indeed, far more natural and handsome. Such experiments add a zest to gardening operations entirely unknown to those who content themselves with the old orthodox methods of their teachers.

THE Silver Thorn, known to botanists as *Elæagnus parviflora* has been tested at the North as a hedge-plant, and great hopes are entertained of its future usefulness for this purpose. We understand that it has been planted quite extensively at various places in the South with equally gratifying success, especially in portions of Louisiana. It is not furnished with thorns, as is the Osage Orange, but the terminal point of each shoot is sharp, and at maturity becomes as hard as a bone; the trimming process tends materially to increase the number of small twigs, each one of of which is usually armed so that no animal appears willing to come into close contact with an old hedge. The plant has many good qualities to recommend it, such as hardiness, beauty of foliage, immunity from blight and other forms of disease, as well as freedom from injurious insects, so far. Persons desiring to grow it themselves should put out a few young trees for fruiting purposes, as it seeds freely, and the berries, by the way, are exceedingly ornamental as well as the foliage.

A CORRESPONDENT says he "accidentally blundered upon an excellent plan to make his trees produce fruit." It was to twist a stout string very tightly around the limbs, and thereby stop the circulation. This is merely one way of utilizing the well-known principle that vegetation when checked by any method induces fruitfulness. Our friend, however, had better select some other system, as, for instance, pinching back the luxuriant shoots during summer, rather than seriously injure his trees by strangulation. His remedy calls to mind the old-time "gentlemen of the road" who obtained a livelihood by grasping unsuspecting travelers by the throat, exclaiming "Your money or your life." The immediate reward was in most cases sure, but the effect in the end was generally disastrous.

A COMMON complaint among amateur florists is the bad condition of the pot soil in which their pets are growing. This is not infrequently caused by the ordinary angleworm which so perforates it and changes its character as to seriously injure the plants. The usual intimation of their presence is the formation of heaps of "casts" on the surface, and if the plant is inverted and the rim of the pot gently tapped against the edge of a table, the ball of earth will come out intact, and the worm, if present, is readily found. A writer in *The Garden*, London, sprinkles soot over the drainage in the bottom of his pots to prevent the worms from entering; he also recommends mixing a little soot with the soil in potting to kill the young, and as soot is a good fertilizer two objects are secured. When worms are very bad in the soil, it is, perhaps, the most advisable plan to dip the ball in clear lime water, which will penetrate into the excava-

tions and cause the inmates to come to the surface, where they are sure to die quickly.

THE *Gardeners' Chronicle*, London, mentions some of the finest specimens of evergreens to be found at Dropmore, that rarest of rare collections. Among the most conspicuous is the Deodar cedar, from the Himalayas, planted in 1834, and now 60 feet high with a trunk 9 feet 7 inches in circumference 3 feet from the ground. A Douglas fir from our far Western country, grown from seed planted in 1827 or 1828, now measures 106 feet in height, thus rivaling the best natives in Colorado. The Chili pine, a noble plant, is here 60 feet high, and if this very curious species to which has been applied the title of "monkey puzzle," can be called beautiful, then is this venerable specimen worthy of that adjective. The three species named are all unreliable in our Northern States, but in the more temperate climate of the South they should receive the attention to which their merits entitle them.

A WELL-KNOWN London florist is sending out this season some charming new annuals. *Romneya Coulteri* belongs to the poppy family, and is one of the most showy of this great natural order. It forms a large branching plant and produces pure white, fragrant flowers, five or six inches in diameter. *Erythræa Muhlenbergii* is a beautiful little Alpine plant, somewhat in the way of the gentians. It grows from 12 to 18 inches in height, with terminal clusters of bright rose-colored flowers. For rockwork it will prove a welcome addition to our list, and as it is more easily grown than the gentians, it may partially take the place of the latter.

WHOEVER is fortunate enough to possess what our English friends term "a bit of water," has an effective element of beauty which the larger portion of our finer places lack. Many a "pond-hole" or streamlet, looked upon as a nuisance by its owner, might with a little good taste be transformed into an attractive feature. We need not go beyond our own native flora to find the necessary material for decorating the margin of water, or for forming what has been very properly termed the "bog garden." In the water itself may be grown with little trouble the *Nymphæa odorata*, which will abundantly repay us with its wealth of deliciously fragrant white flowers. Along the borders where the soil is wet the Side-Saddle Flower, or *Sarracenia purpurea*, will always prove an attractive object, with its broadly-winged pitcher-shaped leaves, and dark purple blooms. The rare *Helonias bullata*, with its smooth, bright green foliage, and purple flowers, arranged in a dense raceme on a stem one or two feet high, is very beautiful. Even the common Arrow Head (*Sagittaria variabilis*), with its many unique and attractive forms, is an excellent plant for the bog garden, thriving with very little care. These are only a few of the many interesting and valuable aquatic and sub-aquatic plants to be found in moist situations.

READERS who are fond of novelties in ornamental trees will be anxious to have a sight of some of the recent "sports" from the birch family. One of the most pleasing weeping trees is grown in England by Mr. Young, of Godalming. When grafted or inarched on a high stem the slender branchlets droop entirely to the ground and form a natural arbor in which one may rest from the noonday sun as comfortably as in an expensive artificial structure. A recent number of the *Revue Horticole* contains an illustration and description of a French variety that "weeps" yet more perfectly, although perhaps with less grace. It is said that in this sport the branches hang down almost parallel to the stem and are devoid of the usual rounded top so prevalent in other weepers. There are two new forms of the birch, probably chance sports from the White Birch of Europe, which are decked with quite handsome purple leaves; one of these is as deep in hue as the well-known Blood-leaved beech, and will be likely to prove quite popular here. We are not aware, however, of its introduction into this country. Another curious novelty in the birches is a variety with an upright columnar growth, reminding one of a Lombardy poplar. This will probably be welcome only to those among us who are curious in such matters.

The Flower Garden.

New Roses of 1875.

A WRITER in the *Gardeners'* (English) *Magazine* gives the names and descriptions of the roses of 1875, as follows:

Tea-scented Varieties.

Aline Sisley (Guillot).—Deep purple-rose, shaded violet-red; large, full, well-formed; awarded a gold medal at the Lyons exhibition in 1874, a distinction it appears to well deserve.

Jean Ducher (Madame Ducher).—Color yellow, shaded salmon and red in the center; very good grower; fine foliage, flowers large and full; very fine.

Duchess of Edinburgh (Veitch & Son).—The color of this rose is a very rich, deep, glowing, velvety crimson, very bright; in the way of the rose Duke of Edinburgh; large, full, and good form. The fragrance is like Marechal Niel; a novel color in the tea-scented section; has obtained a first-class certificate of merit at South Kensington, and is a very free bloomer and of good vigorous habit.

Marie Guillot (Guillot).—Color white, faintly tinged with yellow; large and very full; petals beautifully folded in an imbricated form; growth vigorous, "extra." It was awarded a first-class certificate at Lyons exhibition, 1873, a gold medal at Lyons in 1874, and was very lately exhibited (in March last) at the exhibition of the Royal Botanic Society by Mr. H. Bennett, of Stapleford.

Marie Opoix.—Flowers of medium size, full and of fine form, white, yellowish in the center, and sometimes tinted with pink. It is much better than Niphetos, and likely to become very popular.

Comte de Sembui (Madame Ducher).—Color salmon-rose, reverse of the petals silvery; vigorous; habit good; large and full; good form; very fine. First prize at the Lyons exhibition in 1874.

Perle des Jardins (Levet).—This rose is said to be of the highest merit; the flowers are very large, full and well formed; it is vigorous in growth; color varying from pale yellow to deep canary-yellow. This will be a formidable rival to Marechal Niel, because of its rich color and the continuous manner in which its flowers are produced. Awarded a silver medal at the Lyons exhibition in 1874.

Shirley Hibberd (Levet).—The color of this rose is Nankin yellow, said to be a new color and quite distinct; a free bloomer; growth vigorous; flowers large and full; the form cupped. Awarded a first-class certificate at Lyons in 1873. I have heard an excellent character of this rose, and being one of Levet's raising, is sure to be good.

We have about twelve new tea-scented varieties sent out this spring, and eight of them are very fine; some of them may probably turn out hardy, as the Cheshunt Hybrid has done with me. It has withstood a frost two degrees below zero on standards without the slightest injury.

Hybrid Perpetuals.

My information about the merits of the new hybrid perpetuals for 1875 is not very great as regards numbers, but rosarians must not condemn any of the new roses until they have been fairly tried. I have heard that the following are really good, a few of them possessing sterling merit, viz.:

Hippolyte Jamain (Lacharme).—Color carmine-rose; very large and full; vigorous habit, "extra." This is reported to be a real acquisition. I have a large quantity of plants in pots, and all of them are of good strong growth, the shoots being three feet long, with fine foliage.

Gonsoli Gaelano (Pernet).—Flowers large, nearly full, and of good form; delicate satiny white. In the way of Malmaison, and a decided acquisition.

Ingenieur Madele (Moreau-Robert).—Flowers large, full, and of fine form; color bright coral-red; vigorous in growth, and said to be free flowering.

Monsieur E. Y. Teas.—Flowers large, full, and of excellent form; color rich cherry-red; very showy and attractive, vigorous in growth, and altogether a most desirable acquisition.

Villaret de Joyeuse (Damaizin).—Flowers very large, full, and of beautiful form; color delicately shaded rose-pink; growth vigorous. An excellent rose, likely to be of considerable service in competitive stands.

May Turner (E. Verdier).—This is said to be a first-class rose by several persons, in the way or style of Caroline de Sansal, which is an excellent old rose; flowers very large and full, well formed; color delicate salmon-rose, deeper in the center; vigorous.

Colonel de Sansal (H. Jamain).—Carmine, shaded crimson; velvety, very fine form; very large, full and vigorous.

Comtesse de Serenyi (Lacharme).—Very large and full; fine form; delicate rose, shaded bright rose; said to be like Baroness de Rothschild; a seedling from La Reine. All Lacharme's roses are good, and there is every reason to believe that this will be a first-class rose. It was exhibited at the Royal Botanic Society's last meeting.

Antoin Mouton (Lenet).—Flowers are of an immense size, almost as large as Paul Feron, to which it bears a rather close resemblance. It is also very full and of fine centifolia form; color bright rose with a silvery reflex; vigorous habit; said to be very good; extra.

Souvenir de Mere Fontaine (Fontaine).—Bright rose, carmine center; large, full, and well formed; vigorous; extra fine. This rose is highly spoken of.

Souvenir du Baron de Semur (Lacharme).—I have heard good accounts of this rose, the color of which is very attractive. It is of vigorous habit; the blooms are of large size; form good and very full; color deep velvety purple, shaded black and deep fiery red. In the same line of color as Xavier Olibo.

Madame Riviere (E. Verdier).—Very vigorous; flowers very large and full, fine form; color beautiful rose, very delicate and fresh. I have heard a good character of this rose. One rose nurseryman in the south speaks very highly in its favor. It is a hybrid, but not perpetual. Suitable for exhibition.

Hybrid Perpetuals of 1874.

The following are really good roses of 1874, and for full descriptions the reader must refer to the rose catalogues.

Thomas Mills (E. Verdier).—Dazzling bright rosy carmine.

Miller Hayes (E. Verdier).—Dazzling velvety red, like Charles Lefebvre.

Pauline Talabot.—Very like Dupuy Jamain.

Madame Louise Leveque (Leveque).—Fine, bright, clear rose; perfectly imbricated. This is very fine.

Captain Christy (Lacharme).—A beautiful rose, said to be an improvement on Mademoiselle Eugenie Verdier, and of the same delicate color and shading.

Etienne Dupuy (Levet).—This is well spoken of, and Monsieur Levet recommends it.

Madame Bernutz (Jamain).—Salmon-rose; beautiful color; very large and full. A good rose for exhibition.

Reynolds Hole (Paul & Son).—A very nice rose, and a free bloomer in the garden. I am sorry to say it is tender with me, and that the Cheshunt Hybrid is quite hardy. Three standards of Reynolds Hole were killed by frost, and Cheshunt Hybrid was not injured by the severe frost already mentioned.

Wilson Saunders (Paul & Son).—Petals large and fine; color, intense vivid crimson. This rose has been well exhibited, and is now known to be a first-class rose.

Kœlber (Boyau).—Deep bright red; large, full, fine form, vigorous. This is decidedly one of the best of the 1874 roses.

John Harrison (E. Verdier.)—One of the very dark colored roses; is well spoken of, and said to be a first-class rose.

The Plants and Flowers of California.

BY JAMES VICK.

ONE of the most beautiful floral exhibitions we ever beheld was on the road from Murphy's Camp to the Calaveras Grove, and we think not more than three miles from the Grove. This was about five acres of *Nemophila* in full bloom, making a more compact

and beautiful mass than we have ever seen this flower produce, either in Europe or America. On approaching the Grove we saw something that startled us, though we really did not apprehend any danger. Near the line of snow—for snow still lingered in the shady places and dells, where it had become piled up during winter storms—we observed several crimson spikes growing from the moist soil. We left the carriage in a hurry, and knelt in wonder and delight before the beautiful Snow Plant (*Sarcodes sanguinea*), just trying to dig one up. This is a parasitic plant, growing on the roots usually of pine trees. The stem is succulent, all above ground being rosy crimson, while the portion not exposed to the light is pale pink. The usual height is from one foot to eighteen inches, but the *California Horticulturist* describes one recently found near where we first saw them, twenty-eight inches in length, the spike of flowers over thirteen inches, and bearing ninety-eight blossoms. Before leaving the mountains, we were fortunate in obtaining a good painting of this plant. The Snow Plant is quite plenty in the Sierras.

Bolander's Catchfly Pink (*Silene Bolanderi*) is one of the prettiest wild flowers the tourist will meet in his travels. The flowers are of the size and form shown in the engraving, and of the most delicate pink color imaginable. When we first saw them in bloom while driving along rapidly in the stage, our first impression was that we had found a new Lynchnis, after the style of the best cultivated sorts, like Haageana; then we thought it must be a Japan Pink, somewhat after the style of D. laciniatus. To settle this question, we stopped the stage with a good cigar, until we had time to select specimens. Dr. Kellogg informs us that it was only recently discovered, and first described in a monthly journal of San Francisco, called "*The Living Way.*" As the doctor observes, it is a match for the finest Japanese Pinks that have had ages of labor bestowed on them.

Ithuriel's Spear (*Tritelia laxa*).—This plant resembles the Agapanthus, and improves wonderfully by cultivation. It bears a large cluster of flowers, often as many as fifty. The bulb is found very deep down, and the leaves are few, narrow, long and drooping. The color varies from Victoria blue to purplish blue, according to soil, exposure, etc.

White Tea Tree, or Mountain Birch (*Ceanothus integerrimus*).—The mountains about the Yosemite abound in this beautiful lilac-looking shrub. Imagine, if possible, dear reader, that you are on a road cut in the mountain side, with a thousand feet of the mountain below, and quite as much above you, and all this, as far as the eye can reach, almost literally covered with white lilac bushes, and all in full bloom, and you will have something of an idea of what we saw and enjoyed one day, when, to relieve the tired and over-burdened horses, we climbed four miles of mountain road. Dr. Kellogg writes us of this beautiful plant: "The young twigs have the odor and flavor of the spicy black birch of the Eastern States. One acre of upland well stocked with the Birch is sought after by shrewd dairymen as equal to three of common lowland for the cattle to browse on when the low pasture dries up. Though it does not increase the quantity of milk, it adds ten to sixteen per cent. to the butter—most invaluable for stock when a very dry season occurs, or during severe winters. The bark of the root is becoming celebrated for various diseases, chronic derangement of the liver from miasma, obstinate diarrhœa, etc. The Mountain Birch abounds in the Yosemite and many or most parts of the middle Sierra Nevada mountains."

Delphinium Nudicaule.—Among the beautiful flowers that adorn the California mountains, we saw nothing really more decorative than the bright scarlet Larkspur (*Delphinium nudicaule*). Every mountain-top, especially in the neighborhood of the Geysers, seemed covered with these brilliant little flowers. We filled our hands with the flowers, and our pockets with the seeds; and though often warned that rattle-snakes abounded, we saw nothing more formidable than the pretty little lizzards, that seemed as lively as crickets.

Gardening.

Sunshine in Horticulture.

BY A. L. HATCH.

AMONG the all-pervading agencies in nature, there is none of more importance to horticulture than sunshine—simple, beautiful, generous sunshine. Behold it in spring-time, melting vast fields of snow and ice, chasing Winter back to the north, awakening vegetation from its winter rest, quickening to life and imparting vigor. Think of it glinting among the trees, bronzing leaves, tinting flowers, or coloring fruit. Think of it in summer glow, when its very fervency is languor to animal life. Think of it silently evaporating immense quantities of water from mother earth, and extracting juices from myriads of plants, and think how it is steaming up to the clouds like a perpetual oblation from the shrine of nature, to be returned in gentle dews, refreshing showers, or mighty storms. Think of it in all its chemical, chromatic and calorific powers, and it is ever sublime and grand. Consider it as we will, it is one of the most powerful elements of nature, and of prime importance as an influence in all fruit culture.

During summer, when the mercury stands at 95° above zero in the shade, place a thermometer near the ground, where it will receive the full force of the sun's heat, and the mercury will rise to 120° or more. The surface of the ground, where unshaded, is crusted and baked, and the earth, to the depth of several inches, will be superheated far above what is required for the healthy growth of fruit trees, such as the common apple. The radiation of heat during such times from a clean, cultivated surface, the heat of the sun's direct rays, and the consequently large evaporation of moisture, both from the tree and the earth, must injure the vitality and impair the health of apple trees. The exact limit of heat that apple trees may endure without impairing the full health of leaf, or bark, or bud, is probably such as obtains with the mercury at about +75°. The ill effects of excessive heat are augmented by drought, that wilts the leaves and checks growth; also by moisture, present at times in the form of dew, which may not have evaporated until the sun's heat becomes quite considerable, thereby producing leaf scald, etc.

It is during summer, when exposed to this extreme heat, and to the fickleness of the season in the matter of rainfall and drought, that our fruit trees make their annual growth, and which they must mature and invest with vitality to endure the excessive cold of winter—and such winters here, too, as will congeal the mercury. To be successful, then, *our* apple trees must be able to withstand cold and heat ranging from 40° to +120°, or a difference in all of 160°

The first growth of an apple tree each season, and the only one a healthy tree should make, is made during the first part of the season, and is usually completed in length by the middle or last of July.

Suppose the limbs grow one season two feet, and suppose six inches of that growth was made the last half of June, and the last six inches in July. If the last half of June was very hot, or the tree suffered from drought then; if it was given clean culture, and the sunshine poured upon the earth under the tree, and was radiated in full force, then the growth of the tree made the last part of June will have been injured. The foliage then grown will be crisped and scorched, and very likely not a perfect leaf will have been developed. If the first of July is cooler, and the weather fair as concerns heat and moisture, the six inches of growth made then will be healthy, and the foliage perfect. Thus, at the end of the season, every apple tree will show what vicissitudes it has suffered in the way of heat and drought.

To all thinking minds it is evident that perfectly healthy foliage is necessary to the development of the greatest vitality. At the base of each leaf on the current year's growth of an apple tree, where the stem joins the limb, there is a bud. If the leaf is perfect, and adheres until mature, the bud is perfect. If the leaf is very defective, dwarfed, diseased,

or falls off before maturing, the bud will be correspondingly poor and undeveloped. Buds formed one season should expand the next, and may grow leaves, flowers, limbs or fruit spurs, as the case may be. If the buds are defective from the causes set forth above, they may not expand at all the next season, and only the terminal buds, or such as have most vitality, will grow. We have seen trees that had been given clean culture during a very hot, dry summer, that made a fair growth of limb, but did not expand any buds the next season, except the terminal buds. As a consequence, all the foliage was borne on the new growth of wood; fruit spurs and fruit buds were not developed, and the bearing of the trees was retarded. Had the foliage been perfect the first season, the buds would have been perfect, and would have developed the next season into leaves and limbs, and small spurs would have grown along the first season's growth. Had the foliage been perfect that season, fruit buds would doubtless have formed, to grow the next season. It is not a rule that all trees develop fruit spurs or fruit buds grown on two-year old wood, but that was the tendency of the variety observed. All varieties grow fruit only from buds formed the previous season. This shows that the growth of fruit depends upon the previous year's developments, and that this depends upon sunshine, heat, etc., we have endeavored to show.

The great lack of our seasons is not heat so much as moisture at the proper time. Could we but command the supply of rain so as to utilize the heat of summer, the products of our fields could be vastly increased. With underdraining and irrigation we have no controversy. That they are useful concomitants of agriculture, we firmly believe. There is, however, another adjunct of horticulture of great importance, and that can be more generally commanded than the others. In our opinion it is sufficiently potent in good culture to be called the *sine qua non* of pomology. We refer to mulching. By that we mean covering the surface of the earth with vegetable matter to such a depth and width around trees, as to secure immunity from drouth and parching of the ground; to prevent superheating of the earth and consequent lessening of vitality of the tree; to secure and retain tilth and proper fertility; to enable the tree to make its growth at the proper time, mature it and maintain an equitable supply of moisture, that the functions of the tree may be properly performed at all times.

What to apply as mulching, when and how to apply it, are subjects that every fruit culturist ought to study and understand. That it is necessary, we think is proven by prevailing conditions of climate and culture.

The effect of sunshine upon apple trees is but a simple illustration of its power in horticulture, and mulching is only one method of modifying its influence. Its effects, powers and influences are general, and must be considered in all successful fruit culture. He who understands it best will know one essential to success in horticulture; and success is also the Sunshine in Horticulture.

Ithaca, Richland Co., Wis.

Caterpillars.

BY MYSTIC.

CATERPILLARS have been very numerous in this region for several years. As some persons know, and some do not know, these insects, like many others, undergo several changes of existence. Hatching in early spring, they feed upon the leaves of the apple and other congenial trees until the first part of June, when they migrate for a change of existence. To-day (June 7th), and for two days previous, they have been leaving the trees where they have been hatched—emigrating to protected spots, to remain until converted into a chrysalis state, in which they appear for some time as if inanimate.

Caterpillars are not suffered to colonize and flourish in my garden; but, at their emigrating season, they cross the street and lots of land a hundred feet wide, and come into it from my neighbors' gardens. This spirit of emigration is remarkable, when it is considered there are plenty of good hiding places on the fences and buildings on the premises where they have grown. Though they crawl off to

die as caterpillars, they indulge their appetites for several days after reaching my garden, in feeding upon my rose bushes. Twice a day I am obliged to pick off and kill them to save the leaves from destruction. A few of them feed even upon the young and tender leaves of the pear trees, which are not palatable to the caterpillar.

From the chrysalis state, the caterpillar emerges into a moth that makes winged incursions into the neighboring gardens and orchards. And thus those, who vigilantly exterminate the caterpillars on their own land, must suffer from the negligence of their neighbors. The moth deposits her numerous eggs in a gray paste around small branches of trees. This paste becomes hard and very strong, resembling somewhat in appearance a miniature honeycomb. In the spring, before the leaves put out, these deposits of eggs may be seen by a careful inspection of the trees. Pick off and burn them before they are hatched. This is practicable and quickly done on small trees. The eggs in some of the deposits on my peach trees got the start of me this spring —hatching out before there was a leaf or a flower put forth. But these tiny insects, as soon as hatched, had sense or instinct enough to find the flower buds and eat into them.

The vitality of the caterpillar eggs is astonishing. It survives cold twenty degrees below zero, and how much greater cold, I do not know. Cut open these eggs with a sharp knife when the mercury is below zero, and you will find them apparently unfrozen.

Caterpillars, when in their nest, can easily be killed, if within reach even by climbing. Use slippers, or stockings only, in climbing, so as not to injure the bark of the tree. Those out of reach on the extremities of limbs may be killed by burning, if the injury or death of the ends of the limbs is not objectionable. Wind and tie a woolen cloth around the end of a pole (making a ball as large as a pint bowl); saturate the cloth with kerosene oil; set fire to the oil and hold the burning mass under the nest. Another effectual way of killing caterpillars without injury to the tree (a favorite one with me when a boy), is to shoot them in their nests. A small charge of powder only, with the muzzle of the gun a few feet off when discharged, will do it. Breaking up the nest and knocking off the caterpillars with a pole, is not effectual. A large portion of them will escape on the ground, and in a few hours be on the tree again.

One of the emigrating caterpillars came to grief and death in my garden, yesterday, in the following manner: It was about two-thirds of the full size, and was attacked by a family of small ants. I first saw it within an inch of the entrance of the ants' abode in the ground. The ants were in great commotion. In turns they charged upon, and, for a moment, fiercely bit the helpless caterpillar, and then retreated. The fierceness of the assault probably made it short, exhausting their strength. Those at the throat stuck the longest, being doubtless the champions of the assailants. Generally, not more than half of a dozen ants charged at a time. The caterpillar would remain comparatively, sometimes entirely, still for a minute or two, and then squirm and wriggle. A harder bite than common would cause it to writhe and roll over, and throw off most of its assailants. Then fresh combatants would instantly rush to the attack. The caterpillar did not act in the least upon the offensive, unless writhing and rolling over can be called such; nor, what is remarkable, did it make any attempt to run away. Perhaps it was too badly injured. It had backed down half its length into the ants' entrance, when I removed it an inch distant—not knowing whether the descent was caused designedly by the ants, or accidentally by the caterpillar in its convulsions. Shortly the caterpillar was going down again more rapidly than before, tail first into the abode of the ants. Without a struggle, it gradually sunk into the hole; and in seventeen minutes from the time I first saw the attack, it wholly disappeared with the ants under ground, to become a feast for their valor. During the attack, I placed two large caterpillars, at different times, among the ants. The ants instantly rushed at them, but without success—the hairs of the caterpillars keep-

ing the most of them off. What few ants succeeded in fastening to them, were soon carried away by the caterpillars with rapid steps. Seeing the attack was hopeless, they abandoned it within a foot or two of the point of commencement.

Medford, Mass.

Japanese Maples.

LAST December a very valuable collection of twenty-four varieties of Japanese maples were imported at San Francisco, from Japan, by a gentleman of this city, and as some interest has been manifested in the welfare of these Asiatic nurslings, and sufficient time elapsed to decide their fate, we have taken pains to inquire about their present condition. As was stated at the time, they were put into proper hands; and we find that they have been properly cared for and are doing well. This will afford satisfaction to those who are interested in adding to our list of ornamental trees, for even this single importation, though confined to one class, gives us twenty-four varieties of this class, all of them unique and beautiful.

Probably our readers are not aware of the extent of our plant trade with Japan and China; or they may possibly think that we simply hold the unenviable position of debtor in this account. This is not so, for both these nations, the Chinese especially, are ordering quite freely in the line of ornamental plants. Mr. R. T. Trumbull, of this city, informs us that he has during the present season filled orders from China for the following plants: Fine roses, primulas, calla lilies, snow drops, lilies, native and foreign, fuchsias, fancy colored geraniums, native ferns, etc. Our Asiatic customers, in ordering plants, invariably call for the finest varieties.

Our horticultural receipts from China during the same period, consist of palms, grafted oranges, cape jessamines, camellias, flowering peaches, lilies, etc.

Mr. T. informs us that he expects to receive about fifty varieties of plants by the next steamer from China.

The Colorado Beetle.

MR. SUEL FOSTER writes to the *Country Gentleman*, from Iowa, that it was their practice there, formerly, to mix Paris green for this insect, with twenty to forty times its bulk of flour, plaster or lime, but that experience has taught them that mixing with water is preferable in three important respects: First, it is more effectual; second, it is more easily done; third, it is safer. He says:

"I have tried both ways, and this is my experience. I do not raise as many potatoes as some of my neighbors. Mr. B. told me, a few days ago, that last season he set his hired man to put on Paris green in water, and he himself mixed it with ashes. This hired man took the horse and wagon, with a barrel of water, which he had to fill three times for three acres, and with the garden watering pot, with a fine sprinkler, he put in eight quarts of water and a small tablespoonful of green, keeping it shaken up as he walked along, sprinkled three acres in less than one day. This killed them effectually, but they often, and usually, come a second time, and a second dose is necessary. It takes about one pound of Paris green to an acre each time; the price here is sixty cents a pound. These potato bugs at this rate will cost us here $2 to $2.50 per acre to raise potatoes. Mr. B. with the ashes and green, worked till nearly noon, and went over six rows—about one-fourth of an acre; then the sun came out, and he was willing to quit. It was not as effectual, and there is more danger of inhaling the dust. On using my sprinkler, I found it needed a V lip soldered on the under side of the nose, to prevent the drip from wasting."

A Simple Insect-catching Device.—A writer in *Les Mondes* says that he is enabled to materially reduce the number of insects which prey upon the flowers and fruits of his garden, by covering the inside of an old tub with liquid tar, and at twilight putting a lighted lantern within, leaving the whole out over night. The bugs, attracted by the light, try to reach the lantern and are caught and held fast by the tar.

Fruit Culture.

Pear Culture.

Address by Captain Charles H. Snow. Read before the Maryland Horticultural Society.

FOR market purposes, a pear should have the following qualifications: The tree should be a good grower, and hold its leaves well. The early dropping of its leaves, under drought, is a fault that detracts from the value of many late pears. No pear can perfect itself after loss of leaf. Good size and *color* are also requisite, until the taste of the masses is educated. The only pear of indifferent appearance, that has yet gained the public's approbation, is the Seckel. Pears, for market purpose, should be varieties that carry well, and do not rot at the core.

All summer and fall pears should be pulled from a week to two weeks before they are ripe, and, in the case of many varieties, when they are very green. Too much care cannot be taken in handling fine, large pears. The ease with which they decay, is proverbial. "As rotten as a pear," expresses a state of affairs far from pleasant. I have been struck with the great care taken in France with this fine fruit, especially late fall and winter varieties. On clear, fine days, they are hand-picked, and placed, not over two tiers deep, in baskets, the bottoms of which are covered with some soft substance; they are then carried, by hand, to the fruit-room, which is constructed so that it will be cool and dry, but, at the same time, the heat is never allowed to vary much from 50°. The room is shelved all round, and the pears placed so as barely to touch one another, each variety by itself. When required for eating, the winter pears are, sometimes, and with some varieties, brought into a warmer room.

My own want of success with winter pears, I believe, has been owing more to want of care, than any fault in the fruit. So much care is requisite to perfect fine winter pears, that I think it will be long before they become plentiful; but I see no reason that in a few years we may not have a fair supply through the months of September, October and November.

I will now give my views of a few leading varieties:

Seckel.—A remarkably healthy tree of American origin. The smallness of the fruit more than compensated by its flavor. The size of the fruit is much increased by high manuring. I have seen it fine on the quince. There appear to be two varieties.

Duchesse d'Angouleme.—A healthy tree of French origin, and, possibly, does better dwarfed than most other kinds. Though the fruit is not of the highest flavor, its large size and good keeping qualities will make it a favorite, until a better large one is found.

Bartlett—(*Of English origin*).—This well-known pear is a great favorite, and well-ripened specimens are very fine, if eaten just in their prime. It is probably, as yet, our best large early pear. Should always be pulled some time before they are ripe. Even pears, blown off long before their maturity, will ripen, if put in a close place. This pear commends itself by its size, color, early bearing, and I think it is not much subject to blight. If it came a month later, it would be more valuable, as it comes now in the height of peach season.

Sheldon.—This excellent American pear is fast gaining friends. The tree is a good grower, and quite free from blight. Fruit, medium to large, russetty in color; flavor very fine. Its color is against it, as a market pear, until known. Does not do at all on the quince.

Lawrence.—Too much cannot be said in favor of this fine late fall and early winter pear, and I believe the day will be when it will be more sought after than any other pear we have. Its beautiful growth, fine keeping quality, the persistence with which the fruit and leaves hold on, are remarkable. Its fine sweet flesh, firm and buttery, is peculiarly grateful, after most other pears are gone. I have eaten fruit from the same tree from last October to December 31st.

Howell.—A beautiful American variety. One of the handsomest pears that I know;

always fine shape and color; comes just after the Bartlett; tree healthy, holding its foliage well; fruit large, and will become a good market pear.

Urbaniste (*Flemish*).—Does well on the quince, and, as it is long coming into bearing on its own roots, this is fortunate. It is not, with me, a great bearer, but the quality is so fine that I recommend it to any one who wishes to raise pears for their own eating. The size is large, and color very good, and I find the tree very healthy.

Belle Lucrative.—This is one of Van Mon's seedlings. Does well with me, both standard and dwarf. The fruit has not color enough for a market fruit, but it is of first quality, and almost too free a bearer. This tree blights some, but holds its leaves well. Every amateur should have it.

St. Michel Archange (*syn. Rogers' Elizabeth*).—If it was not so subject to blight, this would be an estimable pear. Of fine growth, dwarf or standard; beautiful, good-shaped fruit; fair size; yellow, and of exquisite flavor, but blights badly.

Beurre Diel.—I am afraid that this superb old variety has run out. In all works on pears, it is highly recommended, but, with me, the leaves fall early, and the fruit cracks badly. Have thirty trees, but never got a bushel of good fruit from them since I planted them.

Vicar of Winkfield.—This pear is very variable in quality. I have had it equal to the Bartlett; very profuse bearer—too much so. I think if the fruit was thinned very much, so that it would grow large, and it was ripened well, it would be found to be very good in January. Does well on the quince; blights.

Tyson.—This is an excellent pear, of American origin. Does not do well with me on the quince. The flavor is excellent. It is long coming into bearing. Ripe in August.

Osband's Summer and Dearborn's Seedling.—Two fine American summer pears. They are too small for market purposes, but fine amateur fruit—doing well on the quince.

Beurre d'Anjou.—Large, showy French pear; has a high reputation both here and in Europe; does well on quince or pear stock; ripe November. It does not come up to my expectations, is too acid. If this is only an accident with me, I would recommend it where it has not this fault; very healthy tree.

Beurre Superfin.—Much lauded North, but far too acid. It is such a showy fruit, that I am always disappointed in eating it, which I seldom do.

Louise Bonne de Jersey.—This is a first-rate grower, either on quince or pear stocks. The quality has been variable—some years a stringent, and at others very fine. I am inclined to believe that if the fruit is thinned its quality will be much improved, as, with me, large specimens are always fine. Should be pulled soon, and skinned before eating.

General Taylor.—This is a Maryland seedling, of the highest flavor, and does with me on quince or pear stocks. It is not a good bearer, and the fruit often comes deformed. If it was not for these faults, I would place it in the first class; ripe last October.

White Doyenne (*syn. Virgalieu*).—I have been agreeably disappointed with this pear. Its reputation for cracking is so bad that I only planted a few dwarfs, but, up to this time, I never had one to crack. If it keeps free from this fault, it is unsurpassed. I have eaten it in Europe, where it stands No. 1. I intend to graft some poorer varieties with this.

Flemish Beauty.—Too much inclined to drop its leaves before the fruit matures. In wet seasons I have had it very fine; must be pulled as soon as the seeds begin to turn brown; otherwise it will rot at the core. With me does well dwarfed, and is free from blight; but West, and on the Hudson river, on rich bottom land, it is said to be very fine.

Beurre Clairgeau.—Like the last, is subject to loss of leaf before the fruit matures; does not do well on the quince, but comes into bearing very early on the pear stock. When it can be made to hold its foliage, it is a very large, showy, high-flavored pear, and keeps, with care, through December.

Beurre Giffard.—Does not do very well

dwarfed; it is a straggling grower, and does best grafted high; must be pulled early, or it will rot at the core.

There are other pears that I could recommend, where a few only are wanted for family use. Winter Nelis, Epine Dumar, Beurre Nantais Des Nonnes, Bezi de Montigny, Rostiezer, Fulton, and Andrews, have all done with me. The Julienne is also a beautiful early pear, though the flavor is not very high. These notes are taken after some ten years' experience. I have some other varieties that have not fruited, or of which I have not made up my opinion.

Huckleberries.

By P. D. Hammond. Read before Indiana Horticultural Society.

IT is true that vast quantities of Huckleberries are produced on lands which are not of any value. But I intend to show that while this class of fruit is hardly worth gathering except by Indians, a berry may be raised that is worth a place in the garden.

Is there any doubt about the practicability of raising this fruit under culture? Some seem skeptical about it, just exactly as my father would have been about cultivating strawberries. He wouldn't have believed the wild things would submit to be plowed and hoed and petted. But Mr. A. S. Fuller being questioned on this point, says:—"Time and again have I endeavored to direct the attention of small fruit culturists to the long-neglected but valuable species of the huckleberry, but with no apparent good results. All the upland species which grow in dry soils are wonderfully improved by culture, and there is not the least difficulty in producing bountiful crops in any soil where the common currant will thrive."

For the variety of berries which I have in mind, I have always had some doubts about their standing the hot July and August suns of this climate, and I think likely that special pains would be necessary to acclimate the plant which glories in defying the storms and tempests of the mountain peaks. But the question can only be settled by trying, the same as all horticultural doubts have to be determined.

Now, about the quality and value of the fruit. There is as wide range of varieties of the huckleberry, both as to the

Shrub, Habit and Fruit,

as of any other berry that can be named. Bushels on bushels of the black, low swamp huckleberry are picked and shipped every year which are almost entirely worthless. But that does not condemn the whole genus *Corymbosum*. I have picked these berries all situations from those dry and tasteless squirrel shot of the swamp to the hardy and presumptuous blueberries which grow on the rocks of

Owl's Head Mountain,

3,000 feet above Lake Memphremagog, in Canada. I have gathered them blue, rich and gamey as a partridge from plucky little shrubs not taller than a bunch of garden sage, and from bushes ten feet high. But I only wish to describe one variety, of which I speak from personal knowledge, and will keep within strict limits of fact. There is a forty acre field in the town of Stoddard, New Hampshire, used as a pasture. It is neither swampy nor unusually wet. I have gathered blueberries there, picking by hand a bushel and a-half a day of the fruit which, in size, sweetness and fine flavor would not be despised on the table by the side of any berries of any kind known to the gardener. These berries are quite as large as the cherry currant at its best estate, entirely blue and with bloom upon the fruit very light blue, juicy, pulpy and rich. The farmer who owns the field permits outsiders to gather for themselves, paying him a stipulated price of

Three or Four Cents Per Quart.

The bushes are high, averaging in size and height nearly equal to the ordinary lilac bush. Why it would not pay to cultivate and improve that fruit, or try it, I could never imagine. I attribute the neglect to the same sort of unbelieving stupidity which has almost exterminated fish from the streams in that country, particularly before even thinking that

the hand and skill of man could propagate and multiply what was so highly valued. The baboons of Africa are fond of fire. And they are said to gather and sit around an abandoned camp fire till the last ember is out, but they have n't quite sense enough to poke the brands together to keep the fire alive. With equal vacancy of mind the past generation in my native State destroyed forests, exterminated game and fish, and exhausted their soils by the most direct methods, and never thought of encouraging the overtures of nature in the rudimentary fruits which she offered. And we are not wholly cured of their follies. If there is in this society any fruit culturist who will give those New Hampshire blueberries a faithful trial, I will assist him in procuring seed, or plants, or both.

Note by Ed. of Horticulturist.—In the New York market, in the height of the summer fruit season, whortleberries invariably sell for a higher price than blackberries.

Grafting and the Phylloxera.

AT a meeting of the Missouri Horticultural Society, Prof. Riley, in an address upon the new grape pest *phylloxera*, called attention to the fact that certain varieties were exempt from the attacks of the insect. He recommended grafting as a remedy.

Speaking of this means as a preventive, he stated the absolute necessity of preventing the vine from taking root from the graft, as it would undoubtedly do, without constant care, if the operation was performed, as is most common, underground. To obviate this, he recommended two well-known methods of grafting above ground, but which are seldom practised in the West. He said:

The first is by temporarily making a false surface and grafting in the ordinary manner, *i. e.*, instead of digging away the earth and inserting the cion two or three inches below ground, it should be inserted two or three inches above ground, and the earth thrown up around it, to be removed only after the graft is thoroughly and permanently joined. There will then be no danger of the graft forming its own roots; and it is certainly as easy to throw the earth around the vine as to dig it away, while the mechanical work can be much more conveniently and agreeably performed above than beneath the surface. The second method is by inarching. This system of grafting does not seem to have been much practised in this country, yet while it requires great care, and success may not as often crown the effort as in the former methods, I hope more attention will in future be given to it.

The operation is comparatively simple. A slice two or three inches long is cut from one side of the vine to be grafted, and a similar slice from the vine which is to serve as stock, as near the base or butt as possible. The two cut portions are then brought face to face, so as to fit as neatly as possible, and are then bound together with cord, basswood bark, or other grafting bandage. In the course of a fortnight partial unison takes place, when the bandage should be somewhat loosened, to admit the expansion. In six or eight weeks, if the operation is successful, the stock and cion are firmly united, when the bandage may be removed. The graft immediately below the union, and the stock immediately above it, should then be partially severed, and in a week or two more should be entirely cut loose.

Prof. Riley closed by giving varieties upon which to graft, viz.: Concord, Clinton, Herbemont, Cunningham, Norton's Virginia, Rentz, Cynthiana, and also varieties to graft on to any or all of the above, as of first importance: Catawba, Iona, Delaware, Wilder; Gœthe, any European or hybrid vine with such; of secondary importance—Ives, Hartford Prolific, Maxatawney.

J. C. N., Duncan Falls, Ohio, says he sprinkles a handful of salt about the trunks of his peach and apple trees, from the 1st of June till the middle of July, and it prevents the borers working and benefits the trees otherwise.—*Rural New Yorker.*

Window Gardening.

Parlor Plants.

Read before the Massachusetts Horticultural Society. By Edward S. Rand, Jr.

WE have said that one great reason of failure in the culture of window plants is the choice of unsuitable species or varieties. There are many plants, indeed a large proportion, with which parlor culture is an impossibility. We are not able to supply the essential wants of the plant, and it sickens and dies. Yet there are many, very many plants, which may be most successfully grown, and some of these we propose to mention.

We must, however, bear in mind that very few plants will succeed if they are removed at once from the warm, moist atmosphere of the greenhouse to the parlor or living room; the change is too great, and the plant receives a shock from which it seldom recovers. Plants from a greenhouse should be gradually hardened off, and then will not suffer. Of the tens of thousands of pot plants sold from the street stands in spring, probably not one in ten survives. These plants are forced into bloom in small pots, have no constitution, and very few of them ever give another flower.

Plants taken from the garden in autumn to winter in the house should be carefully potted early in September, hardened off in the shade out of doors, and removed to the parlor when the nights become frosty; in warm sunny days they should have plenty of fresh air. Treated thus we may have autumn and early winter bloom, whereas if we delay the autumn transplanting until the plants are checked by frost, they seldom give bloom till February.

Our mention of species and varieties suited for house culture must necessarily be brief, and will be confined to winter plants. There are many flowers which do very well in rooms in summer, and which are valuable for those having no garden. Many of the plants we mention are very constant bloomers, and the foliaged species are ornamental both in winter and in summer.

Roses.—These charming and popular flowers are not well adapted for house culture. The dry air affects most varieties unfavorably, and they rarely give satisfaction. Those with very double flowers seldom expand their buds. There are, however, a few old varieties which were formerly more common than at present, and which do well and are worth growing.

The best is *Sanguinea*, a very bright, semi-double variety, flowering in clusters, and always in bloom.

Agrippina is a good pot rose.

The *Pink Monthly*, if grown to a large plant, is seldom out of bloom.

Jennie is a very fragrant tea, and though not a first-class rose is well worth growing.

Safrano and *Pauline Labonté*, two of our best teas, do well if the air of the room is kept moist and not too hot.

Roses in the parlor need frequent washings or showerings, good drainage, and frequent stirring of the surface soil. If the earth in the pots is sour and sodden they soon become sickly.

Abutilon.—All the species thrive in the parlor, except perhaps the red flowered (*A. insigne*), and even this we have seen doing well. The best is the common *A. striatum*, which is always in bloom, is a very clean plant, and of symmetrical growth.

Many species are tall growers, and are too large for common cultivation; where space and sufficient light can be given, they form fine bushes which give a profusion of bloom.

A. Pattersoni or *Santana* is a very free blooming, large flowered variety of compact growth.

A. Verschaffeltii has bright sulphur-colored flowers in great profusion.

A. Thompsoni and *A. vexillarium variegatum* are valuable for their bright foliage; the former, however, requires more heat than most kinds.

A. vexillarium has charmingly contrasted flowers of red and yellow.

A. Boule de Neige is a new dwarf, free flowering, white variety, which promises to be very valuable.

All abutilons require a rich, light soil, with

good drainage, and plenty of water and light. They thrive in the dry atmosphere of living rooms better than most plants, and with very little care give fine foliage and abundance of bloom.

CUPHEA.—For constant bloom there is no better plant that the so-called "cigar plant" (*C. platycentra*). It has bright, cheerful little flowers, grows freely, and never seems to become sickly.

CYCLAMEN.—The varieties of *Cyclamen persicum* are all well suited for parlor culture. A neater, more attractive plant, it would be difficult to find, and its floriferous property is an added recommendation. The tubers should be started into growth in October, watered moderately until in active growth, then more freely. The more light and sun the better. Seedling varieties are easily obtained, and are very cheap; in color they vary from pure white to deep rosy red.

CACTUS.—These are mostly summer bloomers, and all do well with but little care. There is, however, one winter blooming species, *Epiphyllum truncatum*, which is a capital window plant. Give it a light, not very rich soil, with good drainage, be careful not to overwater, and it will not fail to give satisfaction. In the species the flowers are pink, but in the many varieties, all of which do equally well, we have many shades of red and violet, and some dazzlingly beautiful flowers. The best are *Russellianum*, *violaceum*, *tricolor*, *salmoneum album*, and *cruentum*; but all are good and worth growing.

OXALIS.—Of this charming family all the species commonly found in greenhouses may be well grown in the parlor. They should be started into growth in the room and not taken from a greenhouse. The foliage of most is neat and clover-like, and that of some beautifully cut. The flowers are pink, white, and yellow.

O. versicolor is a very pretty basket plant, beautiful in foliage, bud and flower.

The common yellow species (*O. cernua*) is very fragrant and free blooming.

O. luxula and the variety *alba* have large pink or white flowers.

O. floribunda, both pink and white, is never out of bloom, winter or summer. Soil, rich and light, plenty of water when growing, gradually lessening the supply as the plants dry off, and perfect rest in summer until the time comes for repotting and growth.

TRITELEIA.—This little hardy bulb (*T. uniflora*) gives plenty of flower in a sunny window. Treat the bulbs as prescribed for *Oxalis*. The flower varies from pearly white to blue, and continues long in beauty. The odor of garlic which pervades the plant is not perceived unless the blossoms are gathered. Bulbs cost only a few cents each. It is one of the best and most easily grown window plants.

CHINESE PRIMROSE.—A plant of easy culture, very free blooming, never infested with insects, and always beautiful.

Young plants raised from spring-sown seed will make large blooming plants by autumn. The soil should be rich and light, and the plants should have as much sun as possible. The same plant will bloom from November to May,—indeed a fault of the plant, if fault it has, is that it often blooms itself to death. The double varieties are not as desirable as the single for house culture, and the fern-leaved kinds, although elegant in foliage, possess no remarkable blooming qualities. This primrose is one of the best of window plants.

PINKS.—Many of the monthly pinks do well in the parlor. The plants should be lifted from the ground in September, and grown in a light airy room. They will not bloom freely until after the turn of the year, but when they once begin will continue for a long time.

The three best in color are *La Pureté*, red; *Astoria*, yellow; and *President De Graw*, white.

SMILAX.—This pretty vine (*Myrsiphyllum asparagoides*) may be very easily grown as a window plant, and will flower and fruit freely. Pot the tubers in autumn in rich, well drained soil, and give the plants plenty of light, with very little heat. The chief cause of failure with this plant is the heat of the room. Train the delicate shoots to a flat

trellis, or let them run across the window on strings. Dust the foliage if it becomes dirty, and give air on every day when the temperature is above freezing.

CYPRIPEDIUM.—One of the Lady's Slippers (*C. insigne*), is a good parlor plant. The soil should be coarse peat and find sand. Keep the plant always moist, but never wet. It will stand any heat, but suffers from cold. The curious flowers are produced in December, and last in full beauty two months.

PELARGONIUMS.—The Zonale varieties are best for window culture. A rich well drained soil and plenty of sun and light are the requisites for success. If kept in the dark the plants soon become drawn, and if not frequently turned they grow one-sided. The aim should be to get short, stocky growth. The varieties with variegated foliage are all pretty, and generally do well in the parlor, but they are very inferior in flower.

The species with scented foliage, familiarly known as the "rose," "lemon," "apple," "clove," "nutmeg," and "peppermint," "geraniums," are all worth growing; in flower they are inconspicuous; many of the varieties of the rose geranium have beautiful, finely cut foliage. The large flowered pelargoniums are generally unsuitable for window culture, though we have sometimes seen them well grown and bloomed.

RICHARDIA.—The Calla Lily (*R. Æthiopica*) is one of the best window plants. Give a rich soil and plenty of water,—indeed, the plants may stand in water without injury. In spring, plant out the tubers, repotting again early in September. The dwarf variety is desirable. The species with spotted foliage must be wholly dried off in summer; its only beauty is the foliage, the flower not being especially handsome.

AZALEA.—The varieties of *Azalea Indica* and *Phœnicea* bloom freely as window plants. The soil should be peaty loam and sharp sand. The reason why azaleas so seldom bloom well in parlor culture is that care is not taken to ripen the young growth which succeeds the flowers, and in which the buds are formed for the next year's bloom. Unless the air of the room is kept moist, azaleas are apt to drop their foliage. The species, white and purple, are better for house culture than any of the varieties; and of the varieties those with large foliage succeed better than the fine leaved kinds.

CAMELLIA.—If the room is kept cool and without furnace heat camellias may be bloomed in the parlor as well as in the greenhouse. The chief difficulty is the dropping of the flower buds, caused by dry, hot air. Do not attempt to force them, give plenty of fresh air on mild days, and there will be a fine spring bloom.

JASMINE.—The Indian Jasmine (*J. revolutum*) is a charming, free flowering species, with rich, dark green foliage, and fragrant yellow flowers. It thrives in the parlor, and well repays the trouble of growing. Soil a light peaty loam, good drainage, and plenty of water. We have seen one plant of this species entirely filling a large bow window, and bearing hundreds of flowers.

A great cause of the failure to bloom hard wooded plants well in the parlor is neglect of them during the summer. Parlor plants are too often, as soon as the weather gets warm, set out on a piazza, or under trees, or in a back yard, exposed to parching suns and drying winds, irregularly watered, and, in fact, generally neglected until autumn comes again. The wonder is how so many survive, and why they bloom at all. Let us bear in mind that it is in the summer that these plants prepare for the winter bloom, and that they need care and attention then quite as much as in winter.

Thus have we given a list of some of the plants suited for window culture. We have purposely omitted mention of the different species of Dutch Bulbs, such as Hyacinths, Narcissus, etc.,—of foliaged plants, such as Dracænas and Begonias, some of which do well,—of Ferns, of Ivy, and of the large tribe of succulents, many of which are very ornamental; also summer blooming plants,—Hoyas, Fuchsias, Vallota, and a host of others. The list is quite long enough for selection.

We cannot each of us grow all, but each

can choose his plants from those mentioned, and with care bestowed understandingly, there is little fear of failure. We trust more attention may be given to this mode of culture, and that, as is already done in England, prizes may in future be offered for the best specimens of window grown plants.

Propagation of Plants in Small Pots.

BY ANNE GRISCOM.

WE observed, in passing through some large green and hothouses, in Paris, belonging to the government, also in examining the glass-houses of a gardener in the suburbs of the city, that scores of slips and seedlings were placed in exceedingly small pots. Indeed so tiny were they, that previously to this we had purchased some, as toys for a little flower-loving lassie, not imagining they might have other uses.

These pots, bought at Nice, were made of a fine red clay, and seemed as light as pasteboard. Their length is one and a quarter inches; their diameter, just inside the brim, one inch and one-eighth. They are perfectly plain, but nicely shaped in proportion to their height, and are pierced with a drainage hole in the center.

Those we saw used were plunged to the top in a black soil, which appeared to contain a large proportion of charcoal dust. The soil *in* the pots seemed to be identical with that *outside*. These pots were invariably covered with glasses of a pale yellow-green tint, shaped like a flat-sided bowl reversed, and without the lower rim. They were about a foot high, and perhaps a little more in diameter at the base. We saw large numbers of these shades on shelves placed next to the glass, in the lower slopes of the houses, where the propagating shelves of our gardeners usually are. We concluded there must be a purpose in the use of the black earth; and it was either to attract the heat of the sun, or for the purity and health imparted by the charcoal.

Numbers of Begonia cuttings were growing thriftily in these small pots, the use of which must prevent much injury to the young roots, which are endangered when taken from among a crowd of young slips. To the amateur, the use of such pots would be a convenience, as several could be placed in a large pot, and covered with a small glass.

The green glass shades were seen in grounds outside of Paris by the hundred. They were placed in regular rows over the plants, which they protected, or forced. We supposed they were strawberries, though the transit was too rapid for us to ascertain by looking out of a car-window.

We saw these glasses, also, in considerable numbers in the Jardin des Plantes, at Paris. They were placed either on isolated plants, or over seedlings. Here they were quite large, being nearly two feet high. There were others, too, shaped like miniature greenhouses, the glass being set in lead.

We cannot forbear mentioning the exquisite pansies we saw in bloom in this garden, and in the grounds belonging to the government. There were two varieties; one being quite small, but of exceeding rich colors and texture. We were told that this was the *newest fashion in pansies*. This did not prevent us from admiring the great disks of the older strain, nor the great variety and beauty of their upturned faces. They were generally placed in large bunches of one color and variety—often in long rows. Sometimes the sharp corner of a bed was filled in thickly with these plants, and in several instances we saw large oval beds completely filled with them. The size of the flowers was something marvelous.

The plants, both of the houses and the grounds, were in excellent health and neatly kept, but did not seem to be arranged with much effect to beauty, either inside or out. We must except the houses of the Jardin des Plantes, which we missed through a mishap.

We saw the Botanic Gardens of London. The plants in the houses there, with the exception of those containing the ferns, did not strike us as being in a thrifty condition. Our houses at Washington ought soon to surpass all *we saw* in Europe.

Editor's Portfolio.

Greenhouse Plants—Discussions and experiences of cultivators as reported to the Massachusetts Horticultural Society.

During the meeting of the Massachusetts Horticultural Society the past winter, many choice plants were exhibited, and valuable items of experience brought up in the discussions. We have made condensed notes of the most valuable topics, and think they will be found interesting to all our readers.

ORCHIDS.—*Oncidium altissimum*, remarkable for its abundant floriferous properties; this plant was exhibited in flower at the Rose Show in June, since which time the flowers have died away, and where each flower was in June, there is now a flowering branch with numerous flowers. The stalk shot up to the height of six feet, much branched and filled with bright yellow flowers; a rough count gave six hundred and thirty-two. The other, *Lælia Perrinii*, is a very beautiful species, with petals of a delicate rose color, the extremity of the lip being bordered with rich purple, and blooms at a season when we have very few *Cattleyas* or *Lælias* in flower. *Maxillaria picta*, is easily grown in any greenhouse. *Cattleya Loddigesii*, a beautiful species, also easily grown in the greenhouse. *Epidendrum cochleatum*, Mr. Rand thought hardly worth growing.

E. S. Rand, Jr., exhibited a splendid plant of *Phalænopsis amabilis*, a native of Manilla. This is the first time that this plant has been exhibited, and although the specimen was comparatively small it was obtained at great price. It is appropriately called the "Queen of Orchids;" the flowers are arranged in two rows down the spike, the sepals and petals are pure white, the lip of the same color, the inside being delicately marked with a rosy pink. If kept free of moisture, the flowers will remain in perfection for a long time.

Calanthe Veitchii, a hybrid between *Calanthe vestita* and *Limatodes rosea*. This is said to be one of the best and most useful orchids for winter blooming. The flowers are striking and attractive, the spikes being from twelve to eighteen inches long, and the blossoms of a rich rose color.

E. S. Rand, Jr., also exhibited *Gesnera bulbosa*, one of the oldest and best of the genus; also *Saccolabium violaceum*, a superb orchid from Manilla, where it attains the greatest perfection on the stems and branches of trees; the leaves are about a foot long and two inches broad; the racemes are a little longer than the leaves and are densely clothed with bloom; the sepals and petals are white, irregularly dotted with mauve and lilac, the lip violet in the centre with mauve at the sides. This plant bore four beautiful spikes of bloom, and although the species is said to be somewhat difficult to manage, it will well repay all extra care bestowed upon it, as it produces its beautiful flowers during the dullest part of the year.

Saccolabium giganteum.—It is a native of Burmah, and was first brought to the notice of the public by the Messrs. Veitch, in the autumn of 1866. It is very much like *S. violacea*, continues a long time in bloom, and is deliciously sweet.

Dendrobium albo sanguineum, a splendid orchid from India, shown by E. S. Rand, Jr. The flowers are very large, produced from near the top of the pseudo bulb, and are of a creamy white, with a crimson blotch in the centre of the lip. It lasts a long time in perfection, is very distinct and a fine, showy plant.

Dendrobium Cambridgeanum, a native of India; the plant shown by Mr. Rand is the first one in this country. This species was obtained by Mr. Such, of South Amboy, N. J., at a cost of sixty guineas; this plant is an offset from Mr. Such's. The habit is drooping and the flowers are produced on the young growth; the sepals and petals are of a bright orange; the lip has a crimson blotch in the centre. Also from Mr. Rand, *Dendrobium infundibulum moulmeinense*, a species of great beauty, resembling *D. formosum* in habit and growth of flower, but far surpassing it in size and profusion of bloom.

Vanda tricolor, with three spikes of flowers, which are of a pale yellow, spotted with crimson, lip purple, striped with white, and lasting a long time in perfection. It was a magnificent plant, and undoubtedly the best single specimen orchid ever exhibited.

One of the most beautiful displays of orchids was made in May, by E. S. Rand, Jr., who exhibited four fine varieties of *Cattleya Mossiæ*. The "*Gardener's Chronicle*," for 1864, p. 553, thus speaks of this species: "Four hundred blossoms of *Cattleya Mossiæ* at one view! This is a sight truly worth a journey to the Land's End to witness, and it is a sight that might have been witnessed a few days since, if not even now, in Mr. Warner's orchid house at Broomfield, near Chelmsford. And such blossoms too! Not puny things, with washed out colors, or pallid from sweltering in excessive heat, but located in a ventilated house quite enjoyable, and presenting richly marked colors in marvellous variety, and in all the vigor of robust health; the individual flowers measuring some seven or eight inches across, and the petals, in some cases, being as much as three inches in breadth. Mr. Warner has certainly learnt the secret of growing *Cattleya Mossiæ* to perfection, and consequently, such a picture as his show-house presented at the time of our visit is not, we venture to say, to be paralleled in England, or Europe, or the world."

Aerides Fieldingii, a fine free flowering species from India, the spikes long and branched, the flowers white and rose color, the leaves broad and from six to eight inches long, and altogether a fine exhibition plant; *Dendrobium transparens*, a rare plant, and the first ever exhibited, blooming in the same way as *Dendrobium nobile*, the flowers of a transparent pinkish lilac, stained in the middle of the lip with a blotch of deep crimson; *Oncidium cornigerum*, a very graceful and ornamental species, and quite distinct in habit; the spikes of flowers yellow spotted with deep red, and very beautiful.

Of that magnificent orchid, *Phalænopsis grandiflora aurea*, Mr. Williams says: "This is certainly the grandest of the many varieties of this fine orchid. It is a variety that bloomed among several hundred I imported from Borneo; the sepals and petals are unusually broad, and rounded, and the lip is conspicuously marked with deep orange. It is a compact growing plant with light green foliage."

Cattleya pumila, a lovely species from Brazil; flower rich rose with deep purple lip shading to deep orange, with a white margin. The plant could almost be put in the vest pocket, yet the flower was three inches in diameter. The second, *Stanhopea Martiana*, had fourteen flowers, white, shaded with lemon, and beautifully spotted with reddish purple. It is a native of Mexico.

E. S. Rand, Jr., had on exhibition another of his beautiful orchids, *Vanda Bensoni*, of which Mr. Williams says: "It is a very nice addition to this beautiful genus. A native of Rangoon; it belongs to the *V. Roxburghii* section. A free grower, producing in its native country spikes eighteen inches long, with flowers two inches in diameter, white on the outside and greenish yellow, dotted with reddish brown on the inside; lip white and violet color."

High Prices for Plants and Seeds.

That seeds and plants of new and rare varieties are sometimes offered at very high prices, most persons who have tried to buy them well know. There are several reasons for this, one of which is very well illustrated in the following from Briggs & Brother's *Floral Work*. There is this comfort to those who cannot afford these high prices; if the varieties prove desirable, in a year or two the price will be so reduced that even a moderately-filled purse can afford them:

Mrs. Larcom inquires the reason that new plants and seeds are always so high in price when they are first introduced. Our correspondent has but a faint idea of the expense and labor involved in procuring new plants from foreign countries. A few of the leading and most enterprising of the European nurserymen employ at times able and skillful men to explore certain desired localities where it is expected that new plants can be secured,

to collect all the new as well as the scarcer varieties that had been previously introduced. It sometimes happens that a whole consignment that has cost heavy sums of money as well as months of anxious and laborious care, are completely spoiled by the time they reach their destination. It also sometimes happens that only a few plants of a desirable variety can be procured and sent by the collectors to their employers, who have to propagate and increase them, before they can reap any reward whatever for their venture.

Mr. Linden, of Ghent, Belgium, who is perhaps the most munificent of any of the introducers of new plants, in employing collectors to search after new varieties, spent over $25,000 by one of his collectors in his trip from the mouth of the Amazon to the Isthmus of Panama. This immense sum was spent in one trip alone, and Mr. Linden has usually one collector out all the time. His collection of plants is worth a moderately rich principality.

When a new plant, which is known to the trade as a garden variety (that is a plant that has been raised from seed by the skillful cultivator, and which is usually produced by crossing one fine variety with another) is first produced, it is nothing but right that the raiser should be rewarded for the patience, painstaking and zeal that he has displayed for the general good. It must likewise be borne in mind that perhaps a thousand seedlings will have to be produced to give one single variety worth perpetuating, and this from seed that has been carefully fertilized and crossed with the idea of producing plants or flowers up a certain standard. After a fine variety has been thus secured and proved to be desirable, quite a time must elapse before a sufficient stock of young plants is raised before offering it to the public, and it is only by charging a fair, although seemingly high price, that the introducer or raiser can be compensated for the expense he incurs in obtaining them.

An Instructive Legend.

A trade contemporary tells that when Bacchus was a boy he journeyed through Hellas to go to Naxia; and as the way was very long, he grew tired, and sat down to rest. As he sat there, with his eyes upon the ground, he saw a little plant springing up between his feet, and was so much pleased with it, that he determined to take it with him and plant it in Naxia. He took it up and carried it away with him; but as the sun was very hot, he feared it might wither before he reached his destination. He found a bird's skeleton, into which he thrust the plant, and went on. But in his hand the plant sprouted so fast that it started out of the bones above and below. This gave him fresh fear of it withering, and he cast about for a remedy. He found a lion's bone, which was thicker than the bird's skeleton, and he stuck the skeleton with the plant in it, into the bone of the lion. Ere long, however, the plant grew out of the lion's bone likewise. Then he found the bone of an ass, larger still than that of the lion; so he put the l' n's bone, containing the bird's skeleton and the plant, into the ass's bone, and thus he made his way to Naxia. When about to set the plant, he found that the roots had entwined themselves around the bird's skeleton, and the lion's bone, and the ass's bone; and as he could not take it out without damaging the roots, he planted it as it was, and it came speedily, and bore, to his great joy, the most delicious grapes, from which he made the first wine and gave it to men to drink. But behold a miracle! When men drank of it they first sang like birds; next, after drinking a little more, they became vigorous and gallant like lions; but when they drank more still, they began to behave like asses.

Eucalyptus Globulus.

A correspondent of the the Department of Agriculture, writes as follows:

IBERIA, La.: I obtained a few seeds of the *Eucalyptus Globulus*, and succeeded in raising one of those beautiful trees. It is now five feet high and seventeen months old. Other parties have had excellent success in raising these trees.

The Boston *Journal of Chemistry* for October, gives extracts from a lecture by Prof.

Bentley, in England, upon the properties and uses of this tree. In alluding to its power of destroying malaria, he says: "It is in this respect commonly regarded as being serviceable in two ways: First, by the far-spreading roots of this gigantic tree acting as a sponge, as it were, and thus pumping up water and draining the ground; and secondly, by emitting odorous, antiseptic emanations from its leaves." The professor does not attach much importance to the latter influence.

He cities the Cape of Good Hope, Algeria, Constantia, Cuba, and the Department of the Var, as localities where the planting of this tree has had a marked effect in the diminution of malarial disease.

Insects and Flowers.

Sir John Lubbock recently gave an interesting lecture in London, opening with a defence of the wasp, which he thought a much misunderstood insect. Those wasps, which sometimes give us trouble, are well-meaning creatures which have lost their way, and got out of their place. The wasp is very industrious; he had known one begin the transporting of honey about daybreak, and take away over fifty loads in one day, continuing its labor so long as light lasted. He showed that insects and flowers formed an united kingdom of sweetness and light. As insects get their form and color from flowers, and sustain life by them, so only such flowers had fine color, form, and scent as were related to insects. The lines and bands so ornamental to flowers have reference to the position of the honey—they are guides to insects, and, consequently, absent from night flowers, where they would be useless. For the same reason, night flowers are pale; the Lychnis vespurtina is pale, while its sister, the Lychnis diurna, which flowers by day, is red; it is the same flower laying aside its night-dress, and putting on a gay costume to receive her friends. Wind-fertilized flowers have neither scent, color, nor honey. There is a careful provision among the flower family against that "breeding in and in" which is contrary to sanitary principles; sometimes the stamens and pistils are in different flowers; sometimes they come to maturity at different times, and sometimes the pistil is protected from the pollen of its flower, all three of which are preventives against self-fertilization. But the lecturer showed a score of most exquisite contrivances by which the flowers took care that fertilization should proceed. The Cowslip has flowers of two kinds, and the Violet also, and each flower covers each insect with pollen, to be carried to the other, which the other similarly provides for its counterpart. The Berberry, Dead Nettle, Salvia, Sweet Pea, Daisy, and some others, become quite transfigured to the imagination, as Sir John, who had a hundred pictures for illustration, showed their ingenuity. One allures flies into its beautiful calyx, then holds them prisoners until its pollen has fallen, when they are liberated, but covered with pollen which they must carry to the next syren which captivates them; another has a tiny fence which keeps out all plebeian or small insects from invading the sanctuary reserved for his lordship the bee; another shows a similar loyalty to some other insect; another opens a fine avenue into which the insect must enter, but can only come out again through another avenue, squeezing through, and so moving a machinery for covering him with pollen to be borne to other flowers. Incidentally, Sir John referred to the sleep of flowers. He did not believe a flower clock, such as Linnæus contrived, could ever be of much use, for flowers were very variable, and on dismal mornings refuse to wake up until some hours after their proper time. They also refuse at times to go to sleep at the proper time, and he lately kept one of his flowers up all night.

Experience with the Wild Goose Plum.

A correspondent of *Colman's Rural World* says of this plum:

I have planted extensively of peaches and plums, and as I have planted four hundred trees of a variety (the Wild Goose) that I rarely ever see recommended, I will give my experience with it. Six years ago I planted forty of them. For two years my forty trees have been full of fruit. They are a large red plum, and I think far from second rate. Now

for the reason why they are full by the side of Washington, Jefferson, etc. They are stung by the curculio as much as any, and frequently carry the scar to ripening; but they are not injured, because they have a thick, tough skin that is rarely punctured deep enough for eggs to be protected from the sun enough to hatch. I have picked and laid away fruit not ripe, until I find that they can be safely gathered for eight or ten days before they reach market, and be as finely flavored as ever. The tree is a rapid grower, and is, in appearance, of the family of Chickasaws. My six-year-old trees will hold four bushels this year; and they are not easily killed, while at the same time I cannot find a live peach. I have written more than I intended, so I will close.

Almond Culture in Santa Barbara.

Mr. Olmsted, of Carpenteria, has finished picking his crop of Almonds. He will have from his orchard this season over five tons of the Languedoc or Soft-shell Almonds. Mr. Olmstead's orchard is only four years old, and, of course, is not yet in full bearing. His trees bore a few nuts when two years old. The third year the average yield to the tree was about five pounds. Two rows in the orchard, covering ground equivalent to two acres, that received great care in planting, and special culture, produced 2,000 pounds of dried almonds. This yield, at the wholesale San Francisco market price for the Soft-shell Almond, will give Mr. Olmsted about $230 per acre, after paying all expenses of the year's culture, gathering, sacking, and marketing. One reason of Mr. Olmsted's success in the cultivation of the almond is the fact that he keeps the ground clear, cultivates nothing between the trees, nor allowing weeds to grow up to rob them. Thorough cultivation is required for the almond, and the trees should be at least twenty feet apart each way.—*Santa Barbara Index.*

Camphor in Formosa.

As the gigantic Laurels from which the camphor is obtained are found only on the mountains in the possession of the aborigines, the acquisition of a constant supply is somewhat difficult. Only from those tribes which are on friendly terms with the Chinese can leave be obtained to cut down the trees. With such, a present given to the chief gains, as a rule, the required permission. The Chinese woodman then makes a choice of the trees which appear to be well supplied with sap, and, having felled them, he keeps the best parts for timber, and reserves the remainder for the iron boiling-pots, by means of which is evolved the sublimated vapor which yields the camphor. In the neighborhood of Tamsuy alone 800,000 pounds of this valuable commodity are produced annually. Petroleum also adds to the riches of the island, which, both from its natural and artificial products, is well worthy a struggle on the part of the Japanese to obtain, and on the part of China to defend.—*Cornhill Magazine.*

The Sunflower as a Preventive of Fevers.

We continue to see favorable mention made of the virtues of sunflowers as preventives of bilious fever, chills and fever, etc. A correspondent of the *Soil of the South*, writing from a place in Alabama which he says was peculiarly subject to fevers, gives the result of his experience in the premises, and in not a single instance where he planted sunflowers around his negro cabins, did their inmates suffer from fevers, while his wife, two children, and two house-servants, all had fevers, he not having planted any of the sunflowers around his own dwelling, which, in his opinion, accounted for the difference in the results. We trust that next spring New Orleans may be surrounded by a cordon of sunflowers, that they may be scattered through every garden and cover every vacant lot in the city. Who knows but they may prevent yellow fever also? The correspondent of the *Soil of the South* says:

"My opinion is, that the sunflower in its rank growth absorbs the very elements in the atmosphere that produce fever, or chill and fever, and what is the life of the sunflower is highly obnoxious to the health of the human family; nor do I believe that a man could ever have a chill who would sleep in a bed of rank sunflowers. This, too, seems to be no

new theory, as Lieut. Maury states that his gardener—a Frenchman—informed him that their sanitary influence had been long known in France."

The Absorption of Ammonia by Plants.

It has been generally believed that the ammonia present in the atmosphere (proceeding from animal and vegetable decomposition, etc.) might be directly absorbed by the leaves of plants, and might thus furnish them with nitrogenous aliment. M. Schoesing, in a note to the French Academy of Science, claims to have demonstrated, experimentally for the first time, that this is actually the case. His experiment consisted in cultivating two plants of the same species under conditions exactly similar, except that one of them was allowed to develop its foliage in an atmosphere pervaded with ammoniacal vapors, and the other in an atmosphere free from such vapors. Analyses susequently proved that every part of the former plant was "richer" than the corresponding part of the latter—the "enrichment" of the leaves having extended to the stem and root. The significance of the experiment is apparently not the proof that plants do obtain nitrogen and ammonia; but the proof that they absorb it directly through their leaves. But they may, and probably do, also absorb it through their roots, when it is washed from the atmosphere by descending rains and presented to the plants in the soil as *aqua ammoniæ*. The experiment above does not disprove this, and a similar direct experiment on the roots of growing plants would undoubtedly demonstrate it.

The Early Normandy Plum.

Says the *American Garden:* A new plum bearing this name has been originated in France. The early season at which it ripens may render it worth cultivating in this country. It is thus described: Tree a very vigorous grower, with long branches somewhat divergent. Fruit large or very large—as large as a Green Gage—divided on one side by a very slight furrow. Skin fine, transparent; separating readily from the fruit when ripe; of a clear purple color on the sunny side, and light flesh-colored on the shady side; covered with a light, bluish bloom. Flesh fine and melting; of a greenish color; somewhat firm; filled with a very abundant, sugary, refreshing juice. It ripens from the middle to the end of July, and this, together with its size, handsome appearance, and good quality, renders it valuable. We have no large plum of the same character which ripens so early.

Remarkable Specimens of Lumber.

Wm. Squires, of Nostocton, in writing to Hon. A. J. Dufur, Centennial Commissioner for Oregon, in relation to an exhibition of lumber at the Exposition, says: "I can furnish you at Tillamook Bay, one fir plank, 12 feet wide, 100 feet long; one spruce plank, 8 feet wide, 100 feet long; one cedar plank, 7 feet wide, 100 feet long; one larch plank 7 feet wide, 100 feet long; one hemlock plank, 5 feet wide, 100 feet long." Mr. Squires states that he can get much larger plank if transportation can be supplied. He can also supply planks of like proportions of chittim and other hard woods.

The Florida Cedar.

Active efforts are being made to acclimatize the Florida cedar (*Juniperis Virginiana*) in Bavaria. Its wood is superior to all other kinds of cedar, and is in great demand in the manufacture of lead-pencils. As this industry is largely carried on in Bavaria, the manufacturers are striving to secure a home-supply of the material so necessary to their operations. Seeds have been sown in the Royal forest, and about 5,000 young plants have been grown on one private estate. The cultivation of the tree is also being attempted in other parts of Germany.

It is said that Garibaldi is occupied, among other things, in planting the famous *Eucalyptus globulus*, or Australian gum-tree, around Rome, with a view to prevent malaria. Specimens of this tree are now common in the promenades and public gardens of Europe. It has also been introduced into Cuba, Corsica, Sicily, California, and on the Cape of Good Hope.